

*Directing the thrill of
science to energy
for restoration!*



Tohoku ILC navigator


近衛はな
Hana Konoe

Tohoku Big Bang

I am now standing among the Kitakami Mountains waiting for spring to arrive. At 100m below ground in a solid mass of granite, there are plans to construct the International Linear Collider (ILC), the world's leading elementary particle research facilities, over a stretch of 31 to 50km.

Low profile activities have continued up to now as we move towards this invitation. Yet now, the current Japanese leadership in elementary particle research is entering a new phase as the world's expectations mount. Did you know about this?

This is a one-in-a-million opportunity for the future of Japan and Tohoku.



International Linear Collider

Let's make the Tohoku invitation for the ILC a reality! Tohoku Conference for the Promotion of the ILC

The Best Fit for Tohoku, and for the ILC.

In a word, what is this ILC?

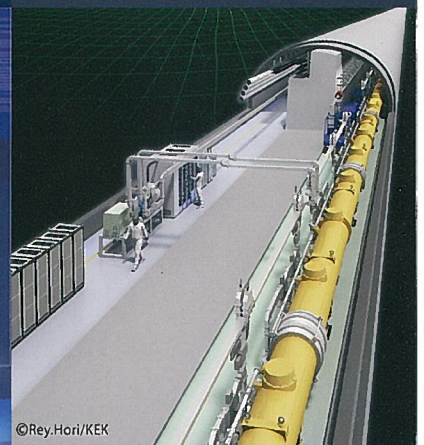
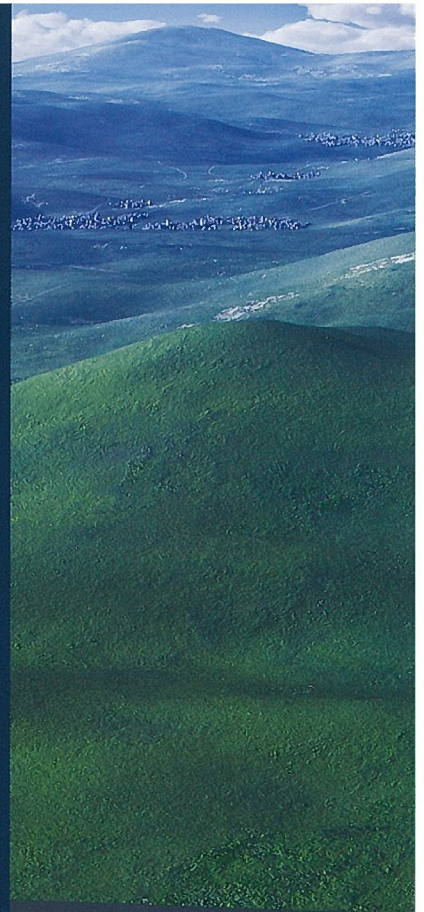
The universe began from a small object with the size of an atomic nucleus 13.8 billion years ago, and has continued to expand since then.

The ILC is an ultra-high precision experimental facility to reproduce the Big Bang at the creation of the universe. Its size will be some 31 to 50km.

Electrons (e^-) and protons (e^+) from both ends will collide at nearly the speed of light, and a mini Big Bang will be reproduced at one trillionth of a second after the creation through energy when $+$ and $-$ return to zero. By capturing and observing the particles created at this point, we can close in on the structure of the particles and empty space, which we cannot see with our own eyes, and discover the true nature of the puzzle of “dark matter” and “dark energy.”

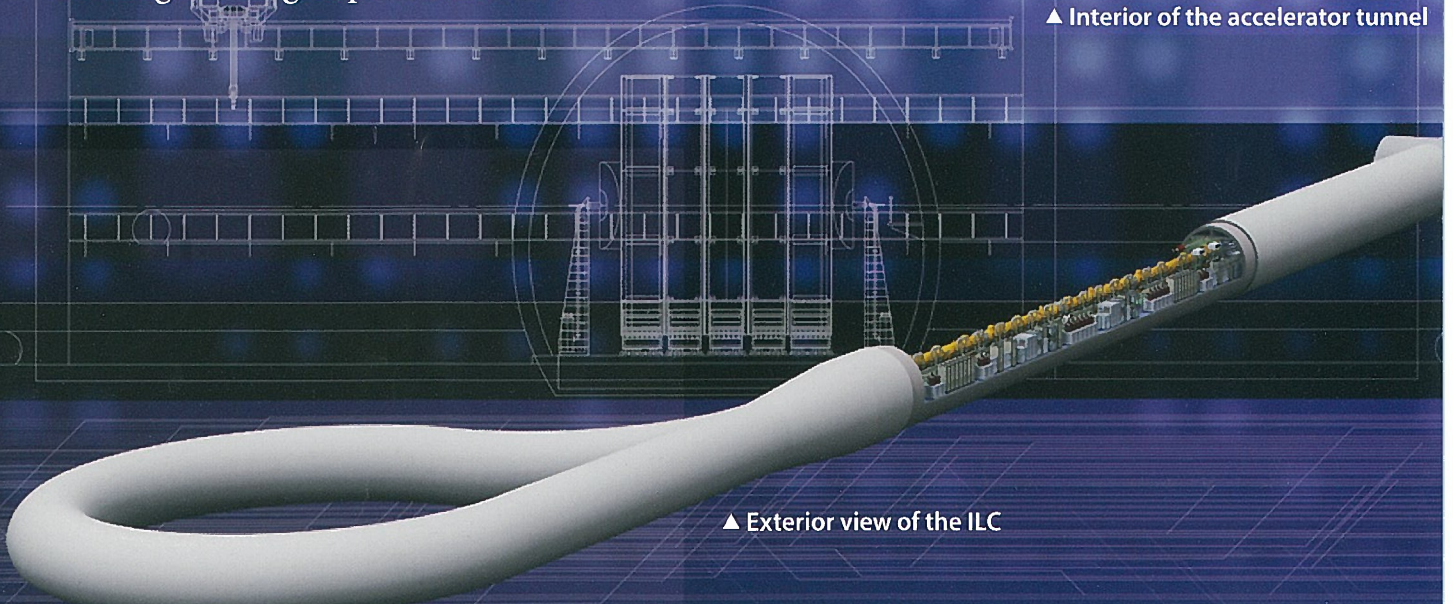
Conditions for siting the linear collider that solves the mystery of the universe's creation.

Because electrons and positrons from sites several dozen kilometers apart will be collided at the scale of a small group of atoms—too small for an electron microscope—design and construction require a super difficult, new technology. An absolute requirement is that the geological foundation of the construction site has the qualities of implacable hard rock. As a prime candidate for the ILC site, right here at the Kitakami Mountains, whose 50km stretch of granite is the longest and largest in Japan, this area is an unwavering basis for the gathering hopes of the world.

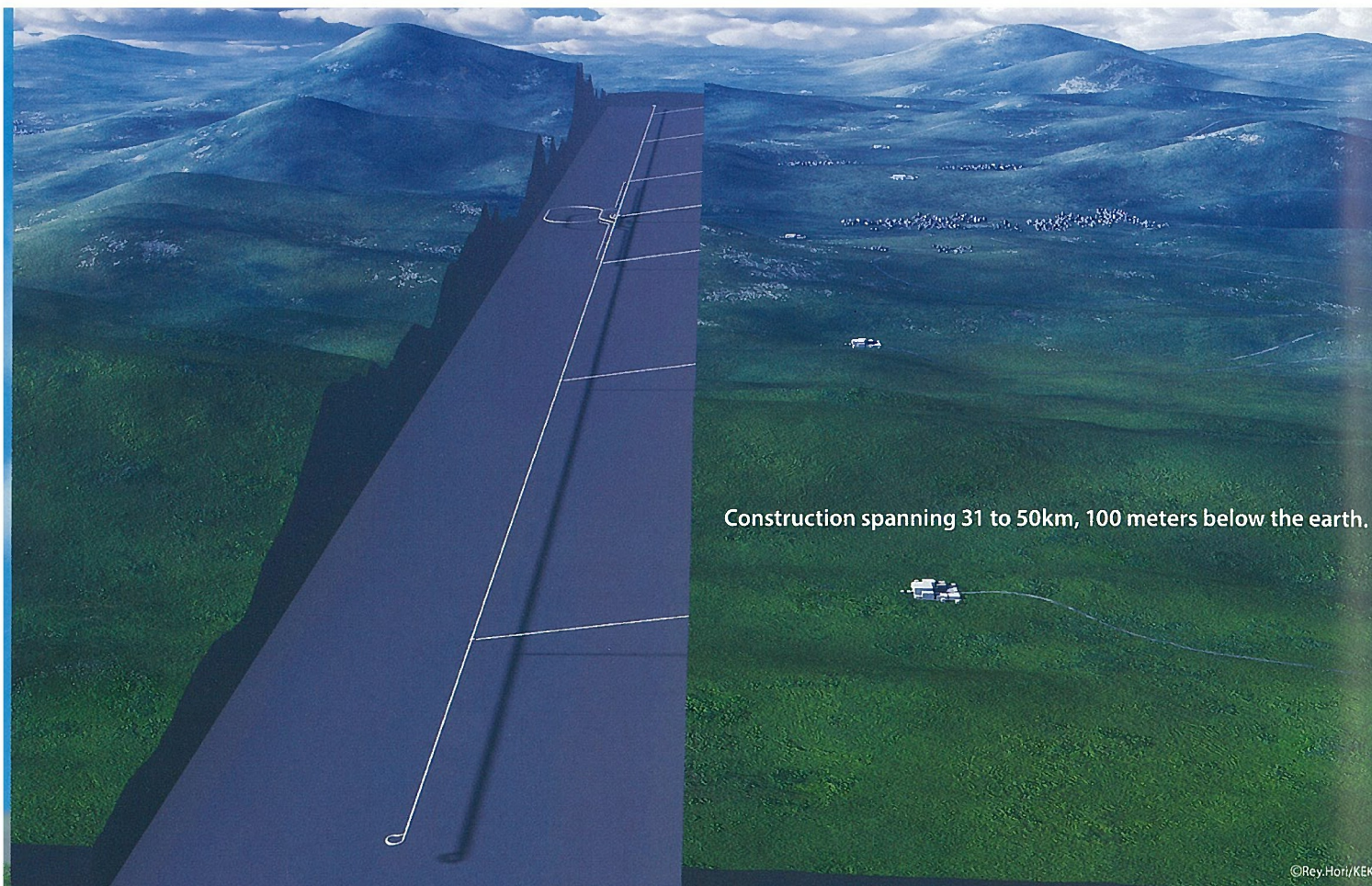


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▲ Interior of the accelerator tunnel



▲ Exterior view of the ILC



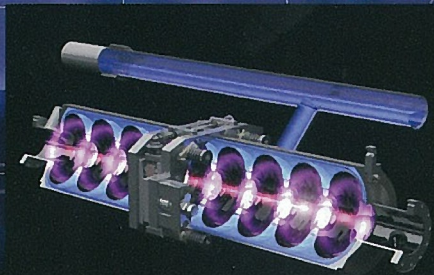
One of the largest granite bedrocks in Japan is spread over the Kitakami mountains.



▲ Next-generation detector for the ILC

▲ Damping ring for concentrating beams

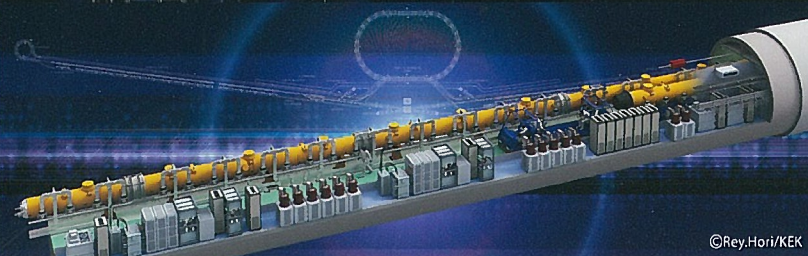
▼ Interior of the superconductivity cavity



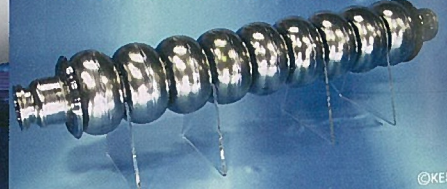
▼ Cryomodule



▼ Layout of the accelerating unit

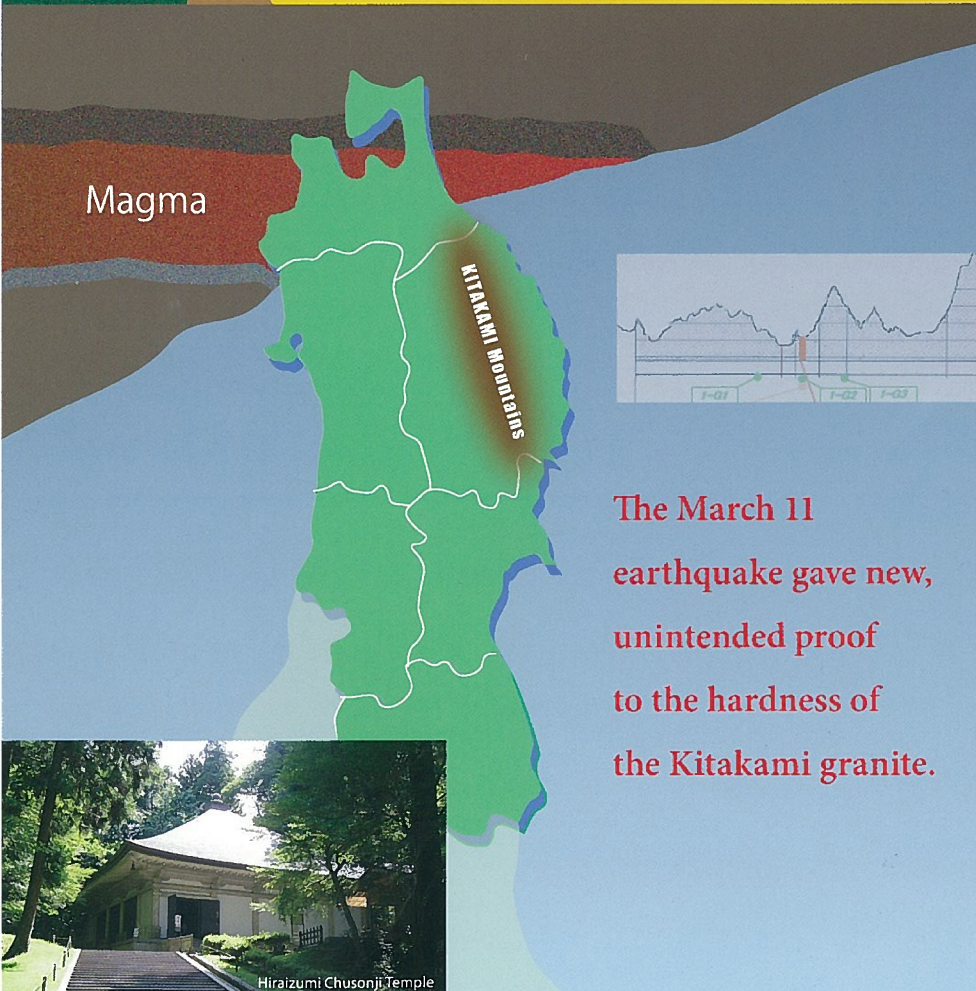


▼ Acceleration cavity made of superconductive niobium alloy



Hardened Cretaceous Magma. Granite Boasting Hardness and Length.

Kitakami Mountains.



Geological survey by the use of boring samples



Boring survey points (vertical red lines) for looking at cross-sections of the Kitakami Mountains

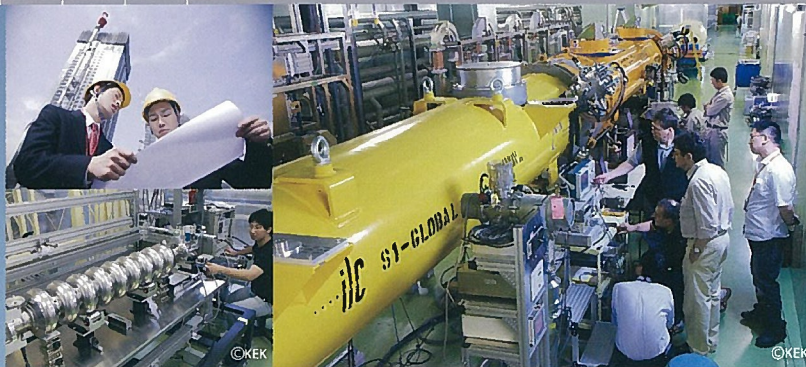
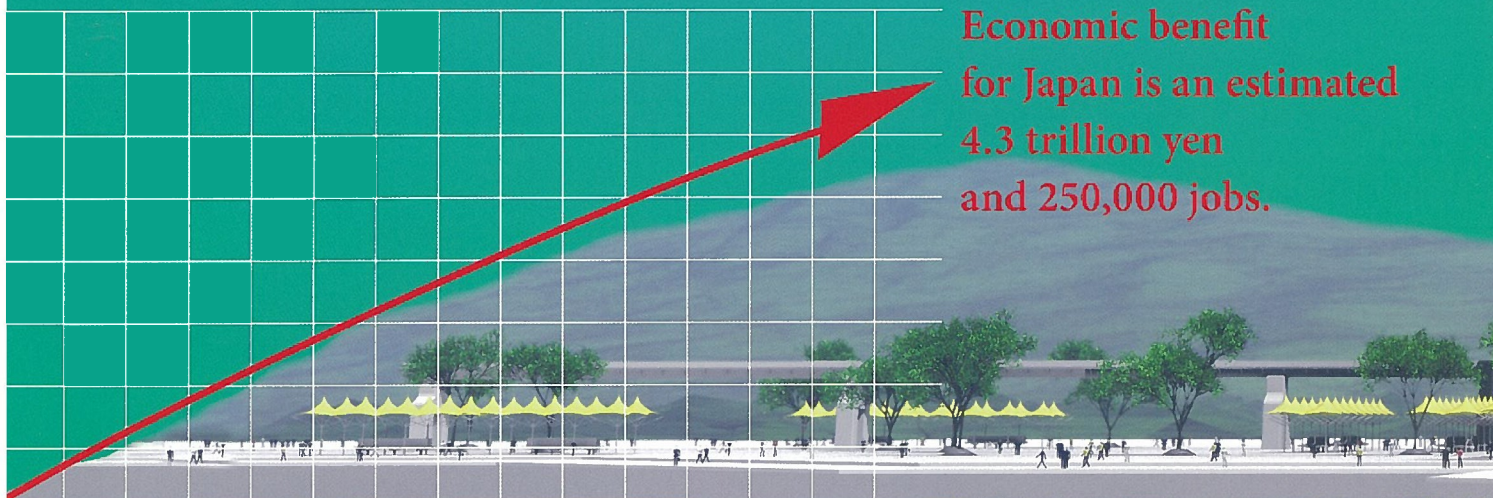
The March 11 earthquake gave new, unintended proof to the hardness of the Kitakami granite.

Despite the destructive force of a magnitude 9 event, there was no damage at all to the tunnel observation facilities in the Kitakami Mountains. Proving the fitness of the Kitakamis for building the ILC, Hiraizumi sits among the famous remains spread across the foothills and was recognized as a World Heritage site after the earthquake for the great Middle Age temples of Chusonji and Motsuji silently nestled in its midst.

From Losing People to Bringing Them In.

People and Businesses Will Come When the ILC is a Reality.

Economic benefit
for Japan is an estimated
4.3 trillion yen
and 250,000 jobs.



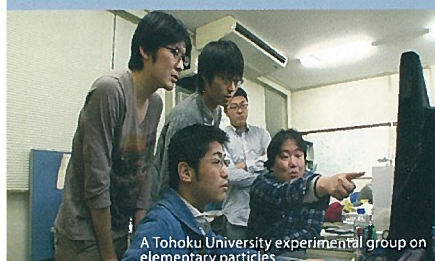
People.

Talent.

Technology, Business.

Starting to gather
around the ILC.

If the ILC in Tohoku becomes reality, specialists in accelerators as well as engineers and manufacturers for building the ILC will come to Tohoku from around Japan and abroad. Labor needs will rise, attracting a wave of people from other countries and regions. For Tohoku, with its population outflow problem, the ILC can become a centripetal force for intellectual resources, talent and investment.



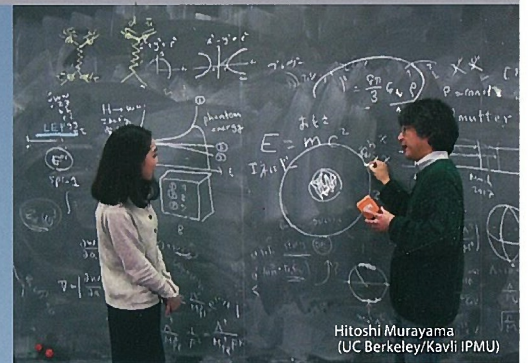
A Tohoku University experimental group on elementary particles

Multinational Happiness.

A Truly International Town Arising in Japan.



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Hitoshi Murayama
(UC Berkeley/Kavli IPMU)

Sharing the forefront.

**Communicating
to the future.**

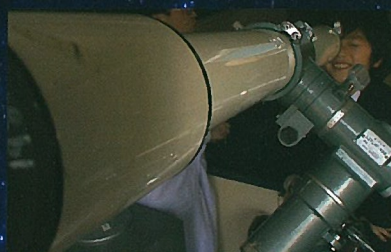
**Researchers who honor
cultural differences
will come together.**

Nobel-class talent will engage in energetic debates in cafes. Shared research for the same goal will constantly transcend the boundaries of culture, ethnicity and country. At times the exchanges will include families, taking part in various events. Urban infrastructure, road and transit networks, environmental systems, and information and communication systems will be upgraded while new facilities will be readied for medical care, banking, schools and childcare.



To the Universe, the Cell, and Energy.

With the Tohoku Vision and Children's Dreams.



St. Ursula Gakuin Eichi
(Pupils of ES/JHS/HS)



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PET (Tohoku University)



Dr. Keisuke Meshitsuka (cancer specialist)



Granite Bed

ILC research will
support creative work
and cultivate talent
in all fields,
micro and macro.

Through the building of the ILC and the research to be carried out, numerous fields will move forward. Physics and mathematics, naturally, but also material science, genetics, medicine and pharmacology, supercomputing and metrology, information and communications, architecture and civil engineering, and countless more. For the entire community, a vision for the future will be created in which the dreams and possibilities for a new life tomorrow will be offered to the children of today.



Elementary Particle Experimental Facility

Please Come to Tohoku!

The International Linear Collider

On March 11, 2011, a magnitude 9.0 earthquake and a resulting tsunami struck Eastern Japan and many precious lives and much property was lost. The people of Tohoku still face a harsh reality, but by persistently following the path to recovery they await a vision that joins their dreams and hopes to the future.

If the ILC does come to Tohoku, what would be some of its effects? First, many leading scientists and engineers, from Japan and abroad, will move to Tohoku. Their families will naturally come with them. This will enable the living environment in such areas as education, medical care, and social services to attain a world-class standard. Revolving around the ILC, which will assemble a framework for leading-edge technology, will be people involved in construction and maintenance. On top of this will be businesses and new ventures from numerous countries that will carry forth their own transformations in different technologies. An international city that will form the nucleus of an "knowledge-intensive industry," much like ones in Europe and America, can now be built in Tohoku, a first for Japan. Since the plan seems so extraordinary, you

might think it is a fairy tale that is far from reality. As a matter of fact, I was suspicious about it until I talked to some specialists who told me about the ILC in detail. Indeed, it is not a fairy tale. It is in fact a tale of reality.

The ILC can be completed in 10 years. School children I visited at a grade school and middle school would be respectable adults by then, and among them would be some first-rate scientists leading their fields. And in the Tohoku region, the source of matter and the mystery behind the origin of outer space will be uncovered as the horizon of human knowledge is pushed outward.

The ILC will have definite effects on employment and business, which will be a key plan for the Japanese economy. In addition, as history shows, the future of Japan lies in having a country built upon intellectual assets.

As a Japanese, I pray from my heart that the ILC in Tohoku will become a reality. Since Tohoku has experienced its share of difficulties, it knows how to cultivate the suitable talent for driving the nation of Japan. If it's Tohoku, it can be done. Since it's Tohoku, it can be done. So I believe.

Profile



Hana Konoe

Actress. Screenwriter. Poet. Born in Tokyo. Graduated from Aoyama Gakuin University. Sent to Russia by the Ministry of Foreign Affairs for training. Studied abroad in France. Took part in the CSP International Conference. Worked at the United Nations University. Hosted an educational program on NHK TV. Works include the NHK drama special "Jiro Shirasu" and the drama serial "Tono Monogatari" (both as screenwriter). Leading part in the film, "Hitoya ni Saku Hana."